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Collaboration and Social Networks between Chemistry researchers: What does this mean for academic libraries?

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Collaboration and Social Networks between Chemistry Researchers: what does this mean for Academic Libraries?

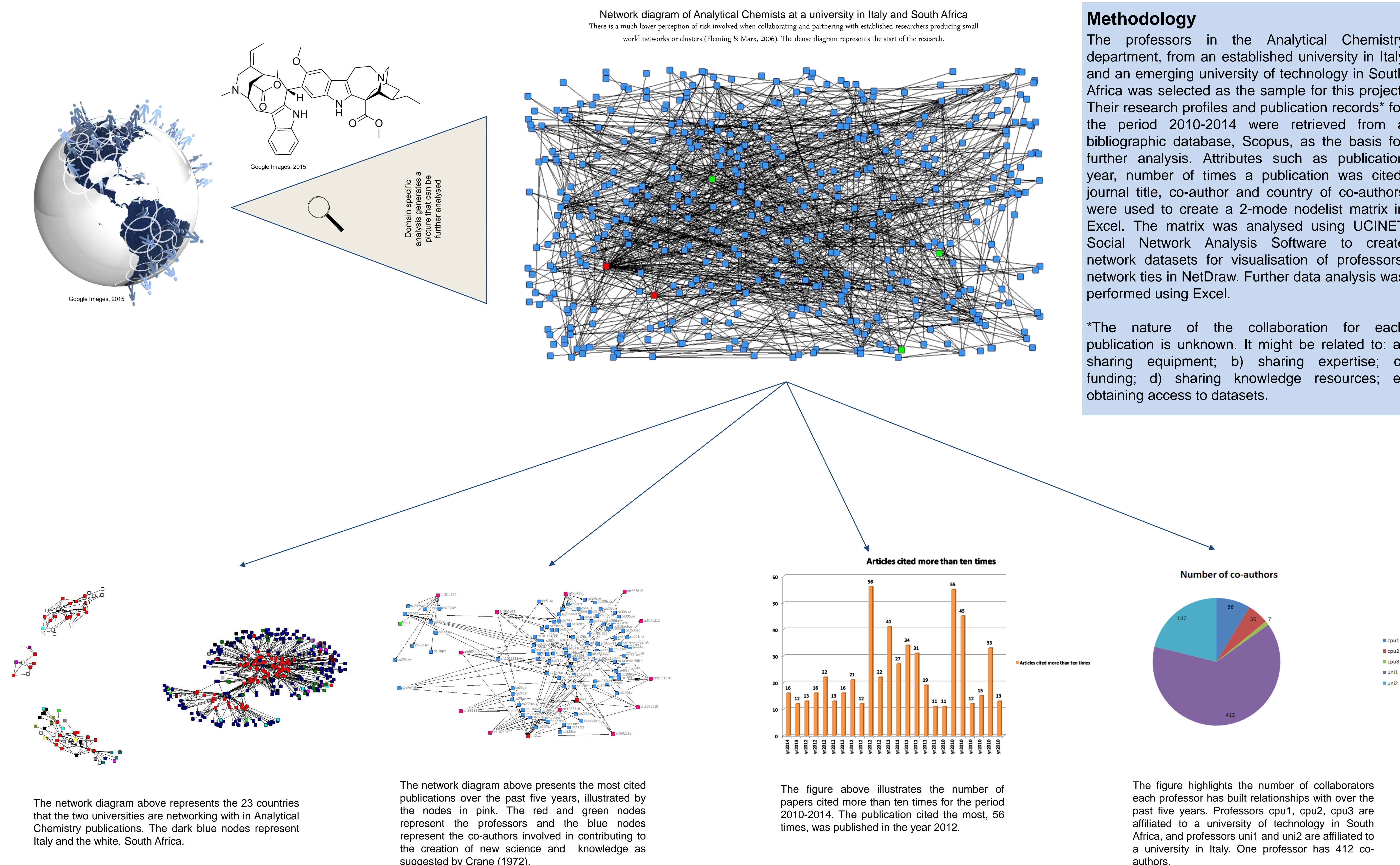


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Introduction

Science, technology and research play a vital role in building and sustaining knowledge societies. The question is: "how does our collective scholarly knowledge grow" (Boyack, Borner & Klavans, 2007: 112)? Organizations need to be innovative and creative to maintain a competitive advantage in the global knowledge economy. However, it has been realized that social networks and clustering, maximize the inflow of information and knowledge production (Nahapiet & Ghosal, 1998). The Chemistry discipline is a good example of such a complex knowledge society (Anastas & Kirchhoff, 2002; Gabel, 1999) which is constantly growing and incorporating interdisciplinary approaches (Boyack, Borner & Klavans, 2007). Relationships between chemistry researchers are "network-centric" (Nambisan & Sawney, 2011) combining social capital to enable knowledge creation. The world is a network. Science and Technology contributes to building knowledge through networks, creating invisible colleges (Crane, 1972). Analysis of faculty networks and collaboration is a different approach to inform strategic planning and decision-making. The social system has been identified as another approach dealing with the study of science (Crane, 1972:3). According to Storer (1966) as quoted by Crane (1972: 4), "science is treated not as a body of knowledge or as a set of methods and techniques but as: 'the organized social activity of men and women who are concerned with extending man's body of empirical knowledge through the uses of these techniques. The relationships among these people, guided by a set of shared norms, constitute the social characteristics of science'. The historians of science focus on studying the characteristics of scientific knowledge relating to change and development in scientific ideas (Crane, 1972:4). Information scientists on the other hand, evaluates the way scientists use scientific literature as well as to what extent they cite scientific literature in their research (Crane, 1972:4). Science and Technology has changed the way knowledge is produced (Hackett et al, 2008), with Crane (1972) claiming that the creation of new ideas, science and knowledge are not determined by the number of publications produced, but rather by the number of times a publication is cited. The purpose of the poster is to illustrate how network ties between Analytical Chemistry professors at two very different universities can inform academic libraries with regards to information provision and an opportunity to build new partnerships with academic libraries involved in faculty networks to enhance the sharing of resources.



Methodology

The professors in the Analytical Chemistry department, from an established university in Italy and an emerging university of technology in South Africa was selected as the sample for this project. Their research profiles and publication records* for the period 2010-2014 were retrieved from a bibliographic database, Scopus, as the basis for further analysis. Attributes such as publication year, number of times a publication was cited, journal title, co-author and country of co-authors were used to create a 2-mode nodelist matrix in Excel. The matrix was analysed using UCINET Social Network Analysis Software to create network datasets for visualisation of professors' network ties in NetDraw. Further data analysis was performed using Excel.

*The nature of the collaboration for each publication is unknown. It might be related to: a) sharing equipment; b) sharing expertise; c) funding; d) sharing knowledge resources; e) obtaining access to datasets.

What does this mean for academic libraries?

Mapping faculty collaboration networks:

- Inform Collection Development and Budget allocation across faculties
- Provides a different approach to plan strategically and make informed decisions regarding subscriptions to electronic resources
- Presents an opportunity to build new partnerships with other academic libraries involved in faculty networks.

Conclusion

The poster represents the network ties of Analytical Chemistry professors at a university in Italy and a university of technology in South Africa. Based on the analysis of networks built, academic libraries have an opportunity to make informed decisions regarding the provision of information and selection of information resources, particularly in the area of supporting research. The application of social network analysis is a tool which can assist academic libraries in their role as knowledge managers. By providing insight into where faculty collaborates globally, the production of new knowledge is highlighted. Furthermore it is hoped that academic libraries can build new partnerships with other academic libraries involved in faculty networks.

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